International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 03, 2020
ISSN: 1475-7192

THE EFFECT OF DIFFERENT KINEMATIC PATHWAYS, ACCORDING TO AN AUXILIARY APPARATUS, IN THE DEVELOPMENT OF CLEAN AND JERK LEARNING BY WEIGHTLIFTING FOR BUDDING LIFTERS

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ABSTRACT: The research aims to use the factory assistive educational system with the aim of improving the motor path and developing performance to raise the clean & jerk for juniors and overcome the factor of fear and confusion during the performance of dropping the weight and the research problem lies in the fact that most athletes care about physical strength or exercises that increase muscle strength and do not pay attention to exercises that The proper performance that enables the quadruple to perform greater lift and achieve higher performance than it achieved, and in some cases the lifters or coaches forget the importance of dynamic performance and ignore its importance in athletic achievement and accuracy of technique, just as the fear factor controls them.

The study aimed to identify the performance development of the lifting clean & jerk, to fully identify the differences between the pre -and post- test of the motor path.

The researcher used the experimental approach to its suitability to the nature of the research problem. The research community was identified by emerging weightlifting players and the sample was chosen intentionally by a group of young players belonging to the Diyala Sports Club who practice their training on the club halls and they are the most committed and like the research sample by (6) players for the experimental group and (6) Players for the control group, as the researchers conducted the kinematic analysis of the control and experimental groups in the pre-test in the high clean & jerk, and the researchers manufactured an auxiliary device that improves the kinematic path of the clean & jerk lift and supports regular and semi-regular exercises, then the post-test was done for the control groups and Experimental. In light of the findings of the researchers, they concluded my machines.

There is a clear superiority of the experimental group that used the auxiliary device, the auxiliary device prepared has an effective effect in developing and improving players' learning of high clean & jerk performance, that the apparatus has an effective impact in reducing errors during learning and training on the performance of high clean & jerk.

KEY WORDS: kinematic pathways, according to an auxiliary apparatus, weightlifting for budding lifters.

I. INTRODUCTION:

It is known that the sport of weight lifting depends on all the elements of fitness, mainly on the basis of two basic variables, strength and speed, and strength and speed are mainly related to muscles and what they produce from a high explosive force that gains weight, acceleration and momentum enough to work on lifting it to the top, therefore all of this depends on the basis of the process Learning in a way that develops the performance of the various stages of the educational process. As for the importance of research lies in the use of an auxiliary plant device that develops the movement paths and demonstrates its effectiveness and measures the rate of improvement for the players by taking the test to raise. The research problem lies in the fact that most of the emerging lifters suffer from the wrong motor performance, especially in the learning stage where the weight moves away from the quadrants which causes an increase in the resistance arm and causes fall or imbalance, as well as during the stage of pushing the weight up which leads to hesitation, fear and lack Equilibrium, which causes gravity to drop, as for the research objectives: To identify the effect of the device manufactured by researchers on the performance of the clean & jerk height for young people, to identify the differences between the pre and post- test of the first part of the clean & jerk lift (clean) and the second part of the lift (jerk) and to know the extent of improvement Performance for beginners lifters using the device. Research hypotheses: There is a statistically significant effect on the level of clean & jerk performance in the lifting of the clean & jerk for the emerging lifters, there is a significant effect of achieving the best clean & jerk performance of the lifting of the clean & jerk according to the factory that works to modify the motor path[1].

II. RESEARCH METHODOLOGY AND FIELD PROCEDURES:

Research Methodology:

The researchers used the experimental approach to design the experimental and control groups with pre- and post-tests, due to the nature of the research problem. **research community:**

The selection of the sample is one of the important things that affect the progress of the steps of the research work. The researcher identified the research community, who are the four weightlifting buddies emerging in Diyala Sports Club, who number (15) quadrants. The community was chosen intentionally, and the committed quadrants were chosen as the research sample represented Diyala club quarters of (12) quadrants, as they were deliberately chosen and divided into two experimental and control groups, and by six quarters for each group distributed among the weight groups. The experimental group adopted the proposed auxiliary device to develop the performance of weightlifting for lift (clean & jerk) in addition to the approach followed for the trainer. The control group adopted the training curriculum for the coach only.

Tools:

1- A factory device that contains several kinematic paths to lift the clean & jerk.

2- Computer type (HP).

3- Sony video camera.

4- Nikons professional photography camera.

5- Integrated weight lifting device.

6- Scientific calculator.

7- Medical scale.

8- Brother DCP-J315W color printer one number.

9- Stopwatch.

Auxiliary device manufactured by researchers:

The general structure of the device:

It is an even structure with a height of (2.50 m) from both sides and a depth of (2.50 m) and a width of (1.30 m) to divide the kinematic paths into three classes, according to lengths, which are short, medium and tall, and with special measurements for each of these paths and The significance of these three tracks lies in making each quadrant to move closer to performance than the path appropriate to it and according to the closest physical measurements that suit their lengths, thus maintaining the correct kinematic path for each quadrant.

Also, the average height path was used with shorter players to notice researchers that there was an imbalance in the process of spreading gravity where the lifters initiate the process of spreading gravity after crossing the gravity knee level and when the dynamic path for the average height with the shorter and the dynamic path for tall with the average The lifters were forced to maintain the typical gravity pathway and not to pre-emptively spread and deliver the gravity to the most appropriate level from the first draw as in the figure Safety rollers: They are two safety rollers placed at the top and maintain the safety of the lifters during the performance of the lift as a steel wire extends from it It is connected with two safety belts that wrap around the bar on both sides and do not allow the free fall of the weight during the performance of the levers. Each of the rollers is characterized by a high bearing capacity on shocks and heavy weights carry two safety belts: they are two safety belts that wrap around the bar from the outside and are connected to the end of the steel wire The outside of the pulleys. The motor path control column: It is a circular column extending from top to bottom that is used to narrow the area of the motor path, whether it is in the first or second pull. This column runs on a double iron rail from the top and bottom and is controlled by two tensioners at the top And the bottom where the column can be presented forward or backward, and thus we can narrow and expand the kinematic path as needed from the front to influence the vertical withdrawal of the weight, iron springs: It is a group of iron springs distributed on the kinematic tracks consisting of an iron spring, and covers each spring Protective caps from the top and the bottom, and inside each springs, an extended rod, and it is directly related to the safety rollers. These springs are placed in their own quarries in the basic structure and are of great benefit in:

- Maintaining the general structure of the device during the fall shock.

- Preserving the reels used.

- The availability of a suitable spring during the stage of falling under the weight in high weights so that the movement process is appropriate and does not cause an imbalance in the performance of the movement during the full height, multiple height signs: they are people distributed on all the movement tracks and each according to his need and separates each person from the other (10 cm) Connecting the elements in the studs to the two iron bars for carrying the weight. Its importance lies in changing the heights and beginnings of lifting

from below the knee to above the belt level and weights: it consists of a basic quadrilateral bar and weights distributed on the sides and as needed.

How to use the device:

After the pre-clean & jerk performance session for lifting the clean & jerk during the course of the curriculum, the lifters were classified according to the lengths and the benefits of the device appeared directly during learning, as the device was used in performing the regular clean & jerk lift and investing the existing safety means and thus the emerging lifters were able to overcome the barriers of fear and hesitation Psychological present during performance and during increasing weights for each quadrant.

The device was also used to perform semi-regular lifts by changing the heights without the need for rests, and the benefit of the column narrowing of the dynamic path appeared, as the trainer managed to reach the lifters to the required level in the performance of the first withdrawals (the clean) and the second (jerk) to reach the nearest point Typical for every quadrant, the device provides safety feature by rollers and the process of determining the dynamic path to ensure the gravity path within the correct path and useful for each quadrant.

Figure (1) the factory device

Pre-test: The pre-test was conducted on the research sample by using the experimental sample, the educational device for assisted motor pathways for two months, and the approach followed for the trainer and according to the instructions of the researchers in the work of the device, while the control sample only used the approach followed by the trainer.

Post-test: After two months of continuous work and training, the post-test and data extraction were performed by motor analysis and statistically processed.

III. RESEARCH RESULTS AND DISCUSSION:

Variables	Pre- and post-test of the experimental group					
Clean &jerk	measuring unit	A Differences	Std Differences	Standard error	Calculated value of t	Significance
Clean	Cm	3.185	3.135	1.2799	2.488	Sign
jerk	cm	12.085	7.999	3.265	3.701	Sign

Variables	Pre- and post-test of the Control group					
Clean &jerk	measuring unit	A Differences	Std Differences	Standard error	Calculated value of t	Significance
Clean	Cm	1.446	1.5333	0.625	2.311	Sign
jerk	cm	3.987	3.542	1.446	2.757	Sign

The first part of the high clean & jerk (clean) has an error rate of (0.847) and is higher than the value of (0.05), meaning that the two groups are not equal, and the researchers attribute this equivalence to the lifters who pull the weight from the starting point to the shoulders broadly by extending The forward hand makes the gravity a high angular momentum, which affects the balance of the quadrilateral and makes it gain an absorption distance for the weight of the gravity high and what causes the projection of the weight to the front. It is higher than the value (0.05), meaning that the two groups are equivalent in this respect, and we find that the mean is very high in the pre-test.

As for the part of the "kidneys", the arithmetic mean (3.5717) for the experimental group is less than the arithmetic mean for the controlling group, as it was (5.898). This is thanks to the diminishing distance of the gravity from the center of gravity of the body thanks to the locomotor track device, which positively affects the distance of landing and absorption of the gravity, and the researchers explain The appearance of the error ratio (0.480), which is higher than (0.05) without statistically significant, is that this ratio is due to the correctness of the training method followed by the trainer, in which the experimental and control groups participated, and which works to develop the maximum strength of the muscle groups and it is known that the development of the maximum strength For the muscle groups of the body's organs, it contributes to employing this strength to serve achievement and performance during the connection between the work of these groups [2]. As for the second part (jerk) it appeared with an error rate of (0.000) and is less than (0.05), meaning that it is moral and in favor of the experimental group and this Thanks to the assistive device manufacturer, because they relied on the device during the performance of skillful exercises of various heights, knowing that these exercises are a large share of the main section and are estimated at (20) minutes, so it is important in the educational training process and in the presence of the body. As we find that exercise becomes more useful [3].

We find that the error rate (for the two kidneys) is (0.05), which is equal to (0.05) calculated, which indicates the significance of the test and for the benefit of the post-test. We find the error rate (for jerks) is

(0.01), which is significant and in favor of the experimental group. The researchers explain this improvement to The presence of the motor path adjusting device and the means of safety and control helped the lifters to adjust the hook-bracket and extend the weight safely to the end of the lift and the lifters 'dependence on performing explosive auxiliary exercises in the clean & jerk lift using the device at the beginning of the training session and this was confirmed by [4]"Rapid exercises with an explosive characteristic of the nit role class will be placed in the plan at the beginning of the training session" as it was relied on the development of complex physical capabilities "as the development of these capabilities of endurance and speed means the development of the individual's ability to perform a distinct physical endurance at a high speed and For a specific period of time "[5] The percentage of error in the (clean) is (0.069), and it is not significant, because the weight is kept away from the center of the body's gravity, more dilated, which generates a burst of gravity towards the front directly as a result of the increase in the speed of the gravity. An expansion from the previous, although the percentage of improvement in the control group is less than the rate of improvement in the experimental group, but it improved due to the effectiveness of the approach followed by the trainer who distributes the ratios of comfort and stresses and loads in a systematic manner[6]. The educated player is the goal of training and choosing the appropriate rest in the training units. The research hypotheses have been fulfilled as there is a statistically significant effect and in favor of the experimental group, and that the manufactured device has an effective effect and the performance of the experimental sample has improved after continuing the training on it.

IV. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- There is a clear change in favor of the experimental group between the pre and post test
- The factory has a significant impact on the improvement of the performance of the emerging quadrant, and there is a statistically significant effect in favor of the experimental group.

Recommendations

Dependence on the assistive device prepared by the researcher in modifying the dynamic pathway because of its effectiveness in the field side

- The need to inform the trainers working in the field of weightlifting sport on the results of the current study
- Displaying the results of clean & jerk analysis to every quadrant, for the purpose of knowing the errors that occur in clean & jerk technique, which affects learning the technical performance of the lever.
- Conducting a similar study to develop performance and achievement in the clean & jerk lift, conducting a similar and comprehensive study with multiple research samples where there is an experimental sample for the device and a control sample without a device to know the percentage of the effect of the device.

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